

Salaries of industrial production managers vary significantly by industry and plant size. According to Abbott, Langer, and Associates, the average salary for all production managers was \$50,400 in 1998. In addition to salary, industrial production managers may receive bonuses based on job performance.

### Related Occupations

Industrial production managers oversee production staff and equipment, insure that production goals and quality standards are being met, and implement company policies. Individuals with similar functions include materials, operations, purchasing, and transportation managers. Other occupations requiring similar training and skills are sales engineer, manufacturer's sales representative, materials engineer, and industrial engineer.

### Sources of Additional Information

Information on industrial production management can be obtained from:  
 • National Management Association, 2210 Arbor Blvd., Dayton, OH 45439. Internet: <http://www.nma1.org>  
 • American Management Association, 1601 Broadway, 10<sup>th</sup> Floor, New York, NY 10019. Internet: <http://www.amanet.org>

## Inspectors and Compliance Officers, Except Construction

(O\*NET 21911A, 21911B, 21911D, 21911E, 21911F, 21911H, 21911J, 21911L, 21911P, 21911R, and 21911T)

### Significant Points

- About 4 out of 5 inspection and compliance jobs are in Federal, State, and local government agencies that enforce rules on health, safety, food quality, licensing, and finance.
- Because of the diversity of functions they perform, job qualifications vary widely.

### Nature of the Work

Inspectors and compliance officers help to keep workplaces safe, food healthy, and the environment clean. They also ensure that workers' rights are recognized in a variety of settings. These workers enforce rules on matters as diverse as health, safety, food quality, licensing, and finance. As the following occupations demonstrate, their duties vary widely, depending on their area of responsibility and level of experience.

*Aviation safety inspectors* work for the Federal Aviation Administration (FAA) and oversee the avionics, maintenance, and operations of air carriers and similar establishments. They evaluate technicians, pilots, and other personnel; assess facilities and training programs; inspect aircraft and related equipment for airworthiness, and investigate and report on accidents and violations.

*Bank examiners* investigate financial institutions concerning compliance with Federal or State charters and regulations governing the institution's operations and solvency. Examiners schedule audits to protect the institution's shareholders and the interests of depositors. They recommend acceptance or rejection of applications for mergers and acquisitions, and testify as to the viability of chartering new institutions. They interview officials in the firm or other persons with knowledge of the bank's operations, review financial reports, and identify deficiencies and deviations from Federal and State laws.

*Consumer safety inspectors and officers* inspect food, feeds, pesticides, weights and measures, biological products, cosmetics, drugs, medical equipment, and radiation emitting products. Working individually or in teams under a senior inspector, they check on firms that use, produce, handle, store, or market products they regulate. They ensure that standards are maintained and respond to

consumer complaints by questioning employees, vendors, and others to obtain evidence. Inspectors look for inaccurate product labeling, inaccurate scales, and for decomposition or chemical or bacteriological contamination that could result in a product becoming harmful to health. After completing their inspection, inspectors discuss their observations with plant managers or business owners to point out areas where corrective measures are needed. They write reports of their findings and compile evidence for use in court if legal action must be taken.

*Environmental health inspectors* work primarily for governments. They analyze substances in order to determine contamination or the presence of disease and investigate sources of contamination to try to ensure that food, water, and air meet government standards. They certify the purity of food and beverages produced in dairies and processing plants or served in restaurants, hospitals, and other institutions. Inspectors may find pollution sources through collection and analysis of air, water, or waste samples. When they determine the nature and cause of pollution, they initiate action to stop it and force the firm or individual who caused the pollutants to pay to clean it up.

*Equal opportunity specialists* enforce laws and regulations which prohibit discrimination on the basis of race, color, national origin, religion, sex, disability, and age in employment and the provision of services. They conduct on-site compliance reviews in accordance with agency and Department of Justice policy and regulations, gather facts related to allegations of discrimination, and make recommendations for resolving complaints. They then prepare statistical analysis and reports relative to implementation of civil rights and equal opportunity programs and refer cases to the legal system for adjudication when necessary.

*Food Inspectors* ensure that the product is fit for human consumption in compliance with Federal laws governing the wholesomeness and purity of meat and poultry products. This is accomplished through inspection involving a visual examination of the live animal or poultry prior to slaughter, and post-mortem inspection to determine that the product is not contaminated and that sanitation procedures are maintained. Processing food inspectors specialize in processed meat and poultry products, and all other ingredients contained in the final product, including frozen dinners, canned goods, and cured and smoked products. They have the authority to shut the plant down if there is a problem that they are unable to resolve.

*Mine safety and health inspectors* carry out the major operational mission of the Department of Labor's Mine Safety and Health Administration (MSHA). They primarily conduct on-site inspections or investigations of underground and surface mines, mills and quarries in search of conditions that are potentially hazardous to the safety and health of workers. They inspect to insure that equipment is properly maintained and used, and that mining practices are carried out in accordance with



*Qualifications for inspectors and compliance officers vary widely.*

safety and health laws and regulations. They also investigate accidents and disasters, and may help direct rescue and fire fighting operations when fires or explosions occur. MSHA's Inspectors work to identify the causes of accidents to determine how they might be prevented in the future, and they investigate complaints to determine whether laws and regulations have been violated. Inspectors discuss findings directly with mine management and issue citations describing violations and hazards that must be corrected. They have the authority to close a mining operation if they encounter a work situation that presents an imminent danger to workers. They may also be called upon by mine personnel to provide technical advice and assistance.

*Occupational Safety and Health Administration (OSHA) inspectors* serve the Department of Labor as expert consultants on the application of safety principles, practices, and techniques in the workplace. They conduct fact-finding investigations of workplaces to determine the existence of specific safety hazards. They may be assigned to conduct safety inspections and investigations and use technical equipment and sampling and measuring devices and supplies required in the field. These inspectors attempt to prevent accidents by using their knowledge of engineering safety codes and standards, and they may order suspension of activities that pose threats to workers.

*Park rangers* enforce laws and regulations in State and national parks. They protect natural, cultural, and human resources, and enforce criminal laws of the United States including the apprehension of violators. Rangers also implement wilderness and backcountry management plans; monitor grazing, mining, and concessions activities; and work closely with resource management specialists and employees to identify and communicate resource threats, perform resource inventories, implement resource projects, and monitor researchers. Other rangers give natural resources talks, lead guided walks, and conduct community outreach and environmental education programs.

*Securities compliance examiners* implement regulations concerning securities and real estate transactions. They investigate applications for registration of securities sales and complaints of irregular securities transactions and recommend legal action when necessary.

Other inspectors and compliance officers include attendance officers, logging operations inspectors, travel accommodations raters, coroners, code inspectors, mortician investigators, and dealer-compliance representatives. (Construction and building inspectors, who perform closely related work, are discussed elsewhere in the *Handbook*.)

### Working Conditions

Inspectors and compliance officers work with many different people and in a variety of environments. Their jobs often involve considerable field work, and some inspectors travel frequently. When traveling, they are generally furnished with an automobile or are reimbursed for travel expenses.

Inspectors may experience unpleasant, stressful, and dangerous working conditions. For example, mine safety and health inspectors are exposed to many of the same physically strenuous conditions and hazards as miners, and the work may be performed in unpleasant, stressful, and dangerous working conditions. Federal food inspectors work in highly mechanized plant environments near operating machinery with moving parts or with poultry or livestock in confined areas in extreme temperatures and on slippery floors. The duties often require working with sharp knives, moderate lifting, and walking or standing for long periods of time. Park rangers often work outdoors in rugged terrain and in very hot or bitterly cold weather for extended periods.

Many inspectors work long and often irregular hours. Inspectors may find themselves in adversarial roles when the organization or individual being inspected objects to the process or its consequences.

### Employment

Inspectors and compliance officers held about 176,000 jobs in 1998. State governments employed 30 percent, the Federal Government—chiefly the Departments of Defense, Labor, Treasury, and Agriculture—employed 31 percent, and local governments employed 19 percent. The remaining 20 percent were employed throughout the private sector in education, hospitals, insurance companies, and manufacturing firms.

Inspectors and compliance officers who work for the Federal Government are employed by a wide range of agencies. Some consumer safety inspectors, for example, work for the U.S. Food and Drug Administration, but the majority of these inspectors work for State governments. Most food inspectors and agricultural commodity graders are employed by the U.S. Department of Agriculture. Many health inspectors work for State and local governments. Compliance inspectors are employed primarily by the Departments of Treasury and Labor on the Federal level, as well as by State and local governments. The Department of Defense employs the most quality assurance inspectors. Aviation safety inspectors work for the Federal Aviation Administration. The Environmental Protection Agency employs inspectors to verify compliance with pollution control and other laws. The U.S. Department of Labor and many State governments employ safety and health inspectors, equal opportunity officers, and mine safety and health inspectors. The U.S. Department of Interior employs park rangers.

### Training, Other Qualifications, and Advancement

Because of the diversity of the functions they perform, qualifications for inspector and compliance officer jobs vary widely. Requirements include a combination of education, experience, and passing scores on written examinations. Many employers, including the Federal Government, require college degrees for some positions. Experience in the area being investigated is also a prerequisite for many positions. Although not exhaustive, the following examples illustrate the range of qualifications for various inspector jobs.

Air carrier avionics inspector positions must possess aircraft electronics work experience involving the maintenance and repair of avionics systems in large aircraft, aircraft avionics experience in a repair station, air carrier repair facility, or military repair facility; 3 years of supervisory experience in aircraft avionics as a lead mechanic or repairer who supervises others; and aircraft avionics work experience within the last 3 years.

Air carrier maintenance inspectors must possess an FAA mechanic certificate with airframe and power plant ratings; aviation maintenance work experience involving the maintenance and repair of airframes, power plants, and systems of large aircraft under an airworthiness maintenance and inspection program; aircraft maintenance experience in a repair station, air carrier repair facility, or military repair facility; 3 years of supervisory experience in aviation maintenance as a lead mechanic or repairer who supervises others; and some aviation maintenance work experience within the last 3 years.

Air carrier operations inspectors must possess an airline transport pilot certificate or commercial pilot certificate with instrument airplane rating; pilot experience in large multiengine aircraft with a minimum of 1,500 total flight hours as a pilot or copilot; pilot-in-command experience in large aircraft within the last 3 years; a minimum of 100 flight hours within the last 3 years; 1,000 flight hours within the last 5 years; the successful completion of turbojet evaluation; and no more than 2 flying accidents in the last 5 years.

Applicants for positions as mine safety and health inspectors generally must have experience in mine safety, management, or supervision. Some may possess a skill such as that of an electrician (for mine electrical inspectors). Applicants must meet strict medical requirements and be physically able to perform arduous duties efficiently. Many mine safety inspectors are former miners.

Bank examiners need 5 or more years of experience in examining or auditing (internal or external) financial institutions. Candidates should have demonstrated a thorough understanding of a broad range of business risks as well as safety and soundness issues. Successful candidates typically have experience in evaluating computer risk management in financial institutions, including recovery planning, information security, and data integrity.

Environmental health inspectors, also called sanitarians in many States, may have completed a full 4-year course of study that meets all the requirements for a bachelor's degree, and that included or was supplemented by at least 30 semester hours in a science or any combination of sciences directly related to environmental health—for example, sanitary

science, public health, chemistry, microbiology, or any appropriate agricultural, biological, or physical science. Alternately, they may have 4 years of specialized experience in inspectional, investigational, technical support, or other work that provided a fundamental understanding of environmental health principles, methods, and techniques equivalent to that which would have been gained through a 4-year college curriculum or some combination of education and experience as described above. In most States, they are licensed by examining boards.

All inspectors and compliance officers are trained in the applicable laws or inspection procedures through some combination of classroom and on-the-job training. In general, people who want to enter this occupation should be responsible and like detailed work. Inspectors and compliance officers should be able to communicate well.

Federal Government inspectors and compliance officers whose job performance is satisfactory advance through their career ladder to a specified full-performance level. For positions above this level, usually supervisory positions, advancement is competitive and based on agency needs and individual merit. Advancement opportunities in State and local governments and the private sector are often similar to those in the Federal Government.

### Job Outlook

Average growth in employment of inspectors and compliance officers is expected through 2008, reflecting a balance of continuing public demand for a safe environment and quality products against the desire for smaller government and fewer regulations. Additional job openings will arise from the need to replace those who transfer to other occupations, retire, or leave the labor force for other reasons. In private industry, employment growth will reflect industry growth and the continuing self-enforcement of government and company regulations and policies, particularly among franchise operations in various industries.

Employment of inspectors and compliance officers is seldom affected by general economic fluctuations. Federal, State, and local governments, which employ four-fifths of all inspectors, provide considerable job security.

### Earnings

The median annual salary of inspectors and compliance officers, except construction, was \$36,820 in 1998. The middle half earned between \$28,540 and \$48,670. The lowest 10 percent earned less than \$22,750, while the highest 10 percent earned over \$72,280. Inspectors and compliance officers employed by local governments had earnings of \$31,800 in 1997; those who worked for State governments earned a median annual salary of \$33,700; and those in the Federal Government earned \$39,900.

In the Federal Government, the annual starting salaries for inspectors varied from \$25,500 to \$31,200 in 1999, depending on the nature of the inspection or compliance activity. Beginning salaries were slightly higher in selected areas where the prevailing local pay level was higher. The following presents average salaries for selected inspectors and compliance officers in the Federal Government in nonsupervisory, supervisory, and managerial positions in early 1999.

Air safety investigators .....	\$68,900
Highway safety inspectors .....	68,100
Aviation safety inspectors .....	65,100
Railroad safety inspectors .....	60,500
Mine safety and health inspectors .....	58,000
Environmental protection specialists .....	58,000
Equal employment opportunity officials .....	57,900
Safety and occupational health managers .....	54,000
Public health quarantine inspectors .....	52,500
Quality assurance inspectors .....	50,600
Securities compliance examiners .....	43,300
Park ranger .....	42,100
Agricultural commodity graders .....	41,600
Consumer safety inspectors .....	37,300
Food inspectors .....	35,200
Environmental protection assistants .....	31,600

Most inspectors and compliance officers work for Federal, State, and local governments or in large private firms, most of which generally offer more generous benefits than do smaller firms.

### Related Occupations

Inspectors and compliance officers ensure that laws and regulations are obeyed. Others who enforce laws and regulations include construction and building inspectors; fire marshals; Federal, State, and local law enforcement professionals; correctional officers; and fish and game wardens.

### Sources of Additional Information

Information on obtaining a job with the Federal Government is available from the Office of Personnel Management through a telephone-based system. Consult a telephone directory under U.S. Government for a local number or call (912) 757-3000; TDD (912) 744-2299. The number is not tollfree and charges may result. Information also is available from their Internet site: <http://www.usajobs.opm.gov>

Information about jobs in Federal, State, and local government as well as in private industry is available from the State Employment Service.

## Insurance Underwriters

(O\*NET 21102)

### Significant Points

- Employment is projected to grow more slowly than average as insurance companies increasingly use "smart" underwriting software systems that automatically analyze and rate insurance applications.
- Most large insurance companies prefer college graduates who have a degree in business administration, finance, or related fields and possess excellent communications and problem-solving skills.

### Nature of the Work

Insurance companies protect individuals and organizations from financial loss by assuming billions of dollars in risks each year. Underwriters are needed to identify and calculate the risk of loss from policyholders, establish appropriate premium rates, and write policies that cover these risks. An insurance company may lose business to competitors if the underwriter appraises risks too conservatively, or it may have to pay more claims if the underwriting actions are too liberal.



*Underwriters determine premium rates for insurance policies.*